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TECHNICAL MANUAL
OPERATION AND SERVICE

POWER SUPPLY

MODEL 0143B

THE [BIEGLER] CORPORATION

Technical Reference Control Facility
Network Support Office
Network Engineering & Operations Division

Preliminary for CANBERRA
FOR INFO ONLY

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HALLAMORE ELECTRONICS DIVISION
714 NORTH BROOKHURST STREET, ANAHEIM, CALIFORNIA. PROSPECT 4 1010
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POWER SUPPLY

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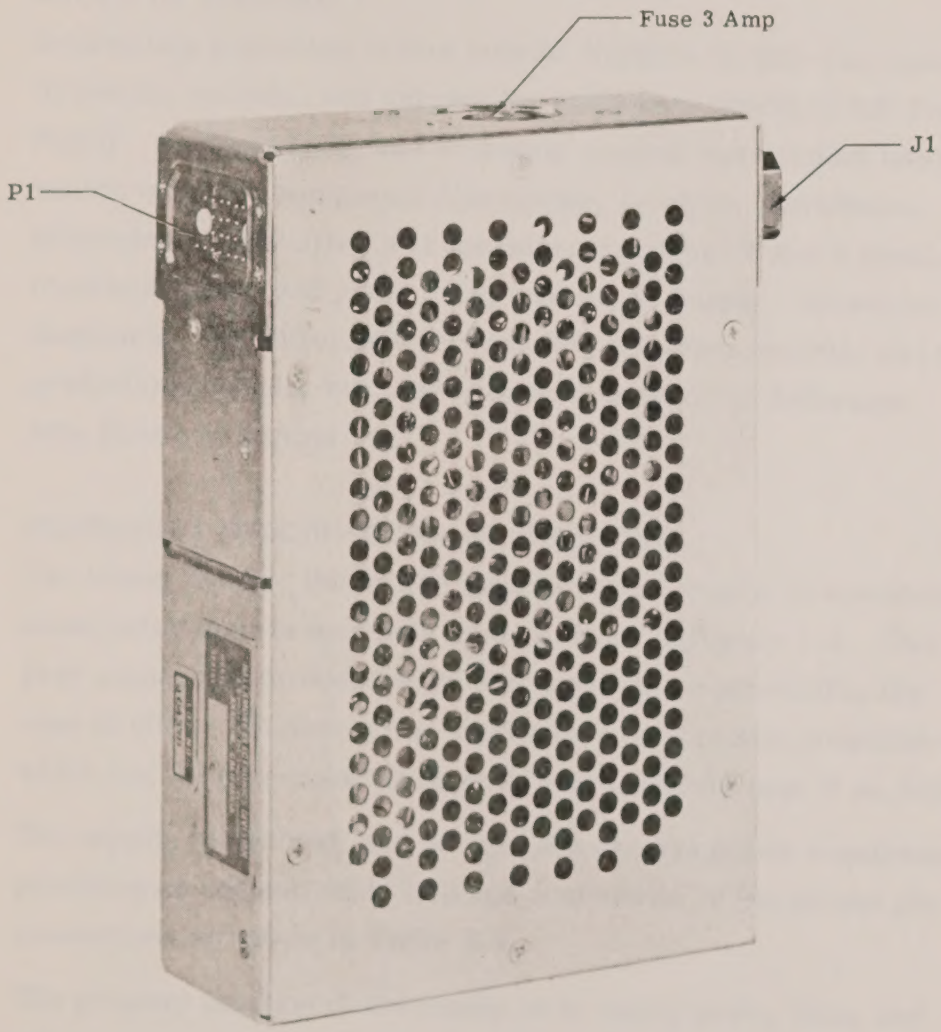

Figure 1-1. Power Supply Model 0143 B

SECTION I

GENERAL DESCRIPTION

1.1 SCOPE OF MANUAL

Information presented in this manual supplies all data necessary to install, operate, and service the Hallamore Model 0143B Power Supply. Sections I, II, and III supply general and detailed information including equipment description, function, installation, principles of operation, and operation; sections IV and V provide troubleshooting, and parts lists; section VI supply schematic diagrams. The difference between this and other models, due to production changes, etc., are covered in detail by difference data sheets in section VII.

1.2 EQUIPMENT DESCRIPTION AND FUNCTION

The Power Supply, (hereafter referred to as supply) is a modular constructed plug-in type unit, and is shown in Figure 1-1. Two rear connectors provided allow the supply to be attached to the rear of either FM Subcarrier Oscillators or Summing Amplifiers which can then be inserted directly into a module case if so desired.

The supply, if desired, can be used for general power requirements providing an adapter cable is made conforming to the proper pin connections as shown in Table 2-1.

The primary function of the supply is to supply plate, bias, and fillament voltages for the Model 0161-2 FM Subcarrier Oscillator or the Model 0166C Summing Amplifier.

1.3 AUXILIARY EQUIPMENT AVAILABLE

Complete FM multiplexing equipment for installation in a Model 0145A Module Case, consist of combinations fo the following equipments:

a. One or more Model 0161-2 FM Subcarrier Oscillators, each incorporating:
   - A Model 0164 Oscillator Channel Selector
   - A Model 0165 Oscillator Output Filter
   - A Model 0143B Power Supply

b. One or more Model 0166C Summing Amplifiers, each incorporating:
   - A Model 0143B Power Supply

c. A Model 1045A Module Case

d. Requisite external connecting cables.

Various combinations of the above, when installed in a Module Case, can then be mounted in a standard 19 inch relay rack.

1.4 SPECIFICATIONS

The Model 0143B Power Supply design specifications are as follows:

Input Requirements	115 VAC, 60 CPS
Power Consumption	60 Watts (At Design Loads)
Output Requirement Maximum Ratings	+250 VDC at 20 MA
	+200 VDC at 8 MA
	- 480 VDC at 12 MA
	-250 VDC at 72 MA
	-200 VDC at 2.5 MA
	6.3 VDC at 300 MA
	6.3 VAC at 1.3 AMP
	6.3 VAC at 1.2 AMP
Height	7-3/4 inches
Width	2-1/8 inches
Depth	4-7/8 inches

SECTION II

INSTALLATION AND OPERATION

2.1 GENERAL

Althrough Hallamore power supply assemblies are Ruggedly constructed and will withstand normal amounts of abuse, reasonable care, as recommended for all electronic equipment, should be observed when unpacking or installing these units. Prior to installation or use, all units should be inspected for obvious damage and/or loose components; if damage is apparent, notify the carrier.

2.2 INSTALLATION

The supply has two connectors, one mounted on each end. The male connector, P1, plugs into the female connector on either the SCO or SA. Both units are then secured by means of four screws. which can then be inserted into a module case.

The single input, output and AC power adapter cable plugs into the female connector, J1, at the rear of the power supply. If the unit was installed in a module case, adapter cables would then have to conform to the specific module case wiring.

Refer to Table 2-1 for proper pin connections for making up external cables.

2.3 OPERATING INSTRUCTIONS

Since the Power Supply contains no operating controls, the supply will be operable when input power is applied to pins 5 and 6 of P1

or J1. External provisions must be made for controlling the application of input power to the primary winding of the power supply transformer. A complete check of voltages as indicated on Table 2-1 should be sufficient to assure proper operation.

TABLE 2-1 CONNECTOR PIN LOCATION GUIDE

CONNECTOR TERMINATIONS			
Connector J1 or P1 Pin Numbers	Description	Connector J1 or P1 Pin Numbers	Description
A1	Shield (coax input)	13	-480 VDC at 12 MA (Max)
1	Common Ground	14	Spare
2	Chassis Ground	15, 16	6.3 VDC at 300 MA (Max)
3, 4	Spare	17	-200 VDC at 2.5 MA (Max)
5, 6	115 VAC 60 CPS	18	-250 VDC at 72 MA (Max)
7	+200 VDC at 8 MA (Max)	19	Spare
8	+250 VDC at 20 MA (Max)	20, 21 ℄, 22	6.3 VAC at 1.3 AMP (Max)
9, 10	6.3 VAC at 1.2 AMP (Max)	A2	Shield (coax output)
11, 12	Spare		

SECTION III

PRINCIPLES OF OPERATION

3.1 GENERAL

The primary function of the Model 0143B Power Supply is to provide the requisite power for Hallamore instrumentation series components in all cases where the common supply Model 0144 cannot be economically utilized and/or where it is desired to maintain DC isolation between circuits. The individual supply provides all necessary filament, bias, and DC power.

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3.2 CIRCUIT DESCRIPTION

The Power Supply, as shown in Figure 6-1, consists of three full wave bridge circuits containing silicon rectifiers, filters and load resistors which provide the necessary positive, negative and bias voltages.

Two 6.3 VAC and One 6.3 VDC filament supply voltages are available. The 6.3 VDC filament voltage is produced by two IN91 diodes connected across the filament winding.

The supply filter can be bridged by external components to alter the normal output voltages to meet special requirements.

SECTION IV

TROUBLESHOOTING

4.1 GENERAL

Supply malfunctions are determined on the basis of the respective functions of the circuit elements desired in Section III. Every effort has been made to utilize high quality components with adequate voltage ratings so as to obviate future difficulty. Since the supply does not contain any vacuum tubes, circuit malfunctions should be at a minimum. When troubleshooting this unit refer to the schematic diagram in Section VI of this manual. Correct electrical component replacements are given in Section V.

4.2 TROUBLESHOOTING PROCEDURES

The following procedures serve as a general guide to effect quick and efficient repair.

a. Check incoming AC line.

b. Check 1 AMP fuse

c. If both (a) and (b) check ok, then determine which voltage or voltages are incorrect.

d. If necessary, a resistance check can be made to determine the faulty part.

e. If replacement of a specific part is justified, check the complete supply to specifications.

SECTION V

REPLACEABLE PARTS LIST

5.1 GENERAL

This section lists and describes all electrical parts in alphanumerical order for the Model 0143B Power Supply (Table 5-1).

TABLE 5-1 REPLACEABLE PARTS LIST MODEL 0143B SUPPLY

Reference Designator	Description	Qty. per Assembly	Manufacturer and Part Number
C1	Capacitor, Electrolytic, Tubular, 80 UF 300 VDC	4	Sprague D27775
C2	Same As C1	Ref.	
C3	Same As C1	Ref.	
C4	Same As C1	Ref.	
C5	Capacitor, Electrolytic, Tubular, Two Section 40-40 UF, 250-250 VDC	2	Sprague D27065
C6	Same As C5	Ref.	
CR1	Rectifier, Silicon, Miniaturized	12	RCA 1N1763
CR2	Same As CR1	Ref.	
CR3	Same As CR1	Ref.	
CR4	Same As CR1	Ref.	
CR5	Same As CR1	Ref.	
CR6	Same As CR1	Ref.	
CR7	Same As CR1	Ref.	
CR8	Same As CR1	Ref.	
CR9	Same As CR1	Ref.	
CR10	Same As CR1	Ref.	
CR11	Same As CR1	Ref.	
CR12	Same As CR1	Ref.	
CR13	Diode, 1N91, 100 P.I.V., 150 MA	2	GE 1N91
CR14	Same As CR13	Ref.	
F1	Fuse, 3 AG, 1 AMP, 250 Volt	1	Littlefuse
R1	Resistor, Composition, 47 K, 1W, ±10%	1	MIL-R-11B RC32GF473K
R2	Resistor, Composition, 2.2 MEG, 1W, ± 10%	1	MIL-R-11B RC32GF225K

TABLE 5-1 REPLACEABLE PARTS LIST MODEL 0143B SUPPLY
(Cont.)

Reference Designator	Description	Qty. per Assembly	Manufacturer and Part Number
R3	Resistor, Composition 82K, 1W, ± 10%	2	MIL-R-11B RC32GF823K
R4	Same As R3	Ref.	
R5	Resistor, Composition, 4.7K, 2W ± 10%	1	MIL-R-11B RC42GF472K
R6	Resistor, Composition, 10K, 2W, ± 10%	1	MIL-R-11B RC42GF103K
T1	Transformer,, Power	1	Hallamore 104391

SECTION VI

SCHEMATIC DIAGRAM

6.1 GENERAL

This section contains a schematic for the Power Supply Model 0143B (Figure 6-1).

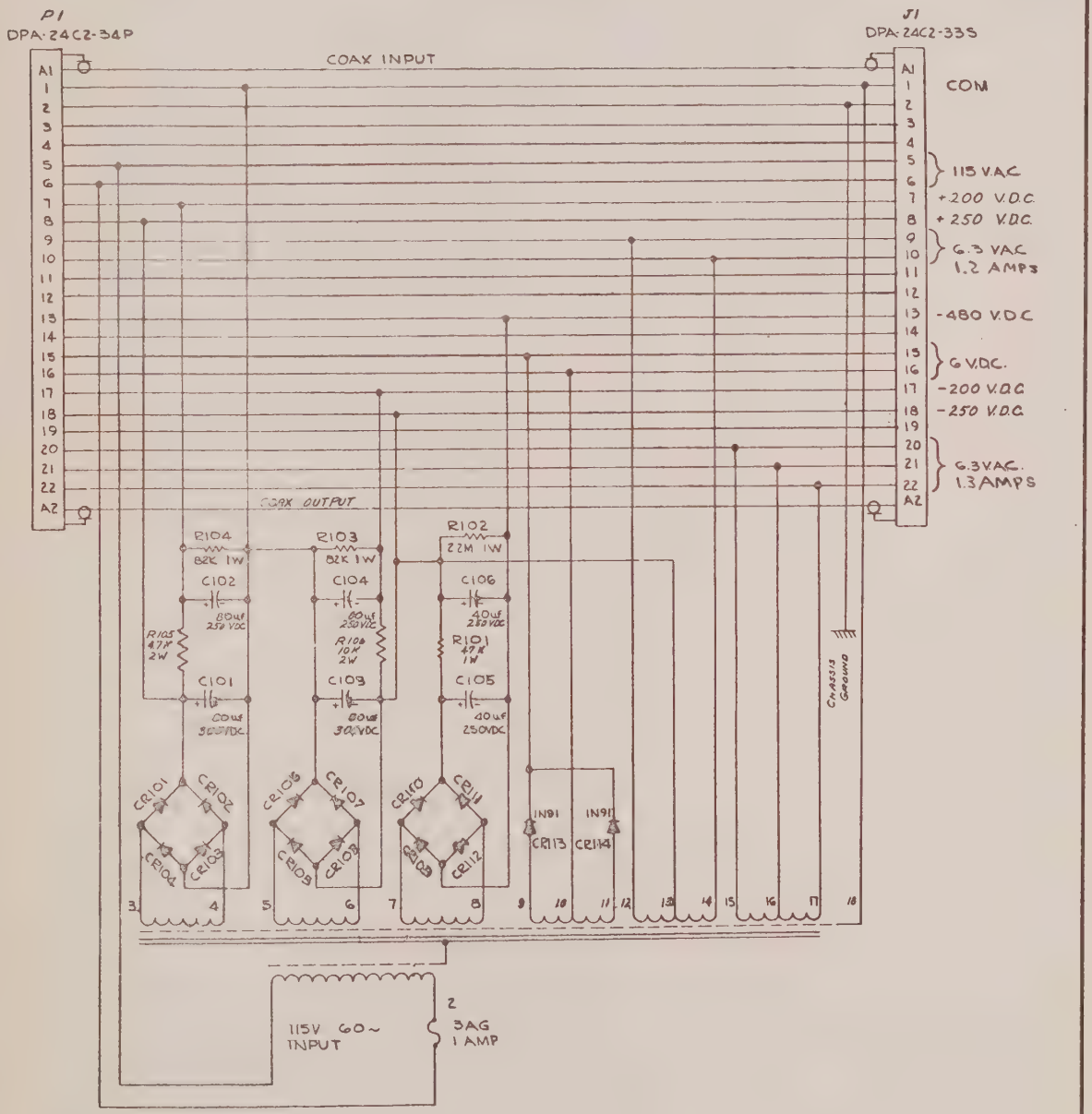

Figure 6-1 Power Supply Model 0143B, Schematic

SECTION VII

DIFFERENCE DATA SHEETS

7.1 INTRODUCTION

Instructions for the models in this section are identical to the instructions contained in Sections I through V of this handbook except for the differences noted in the following Difference Data Sheets.

7.2 INDEX OF MODELS COVERED

None.